

**Remarks**

Claims 5 to 9, 14 to 16 and 22 are currently pending in the application. Claims 1 to 21 were rejected under 35 U.S.C. § 112, first paragraph. Applicant has canceled Claims 1 to 4, 10 to 13 and 17 to 21 without prejudice or disclaimer. Applicant has amended Claims 5 to 9 and 14 and added new Claim 22.

**Amendments**

Applicant has canceled Claims 1 to 4, 10 to 13 and 17 to 21 without prejudice or disclaimer.

Applicant has amended Claims 5 to 9 to recast them in Jepson format as method claims. Support for these amendments are found *inter alia* at paragraphs [0016] and [0017] of the instant specification. No new matter has been added.

Applicant has amended the preamble of Claim 14 to replace “produce” with “provide.” Support for this amendment is found *inter alia* at paragraph [0010] of the instant specification. No new matter has been added.

Applicant has added new Claim 22, which recites that the polymerization of propylene is controlled so that the polypropylene produced has a melt flow rate of about 2 to about 4 dg/min. Support for this amendment is found *inter alia* at [0013] of the instant specification. No new matter has been added.

**Rejection Under 35 U.S.C. § 112, first paragraph**

Examiner rejected Claims 1 to 21 under 35 U.S.C. § 112, first paragraph as not being supported by an enabling disclosure. Applicant has canceled Claims 1 to 4, 10 to

13 and 17 to 21, rendering those rejections moot. Applicant has amended Claims 5 to 9 and 14.

Claims 5 and 14 are the independent claims.

It is the Examiner's position that the level of unpredictability in the art of polymerization of propylene is such that one of ordinary skill in the art would not be able to produce a propylene homopolymer having the claimed properties without undue experimentation, in the absence of an explicit disclosure of the process conditions used to produce such homopolymers. Office Action pp. 3-4. Applicant respectfully submits that the Examiner is mistaken and submits herewith the declaration of Dr. Sehyun Kim in support of this position.

M.P.E.P. 2164.01 states “[t]he test of enablement is whether one reasonably skilled in the art could make or use the invention from the disclosures in the patent **coupled with information known in the art** without undue experimentation.” *United States v. Telectronics, Inc.*, 857 F.2d 778, 785, 8 USPQ2d 1217, 1223 (Fed. Cir. 1988) (emphasis added). Further, a patent need not teach, and preferably omits, what is well known in the art. (citations omitted).

With regard to experimentation, the test of enablement is not whether any experimentation is necessary, but whether, if necessary, that experimentation is undue. *In re Angstadt*, 537 F.2d 498, 504, 190 USPQ 214, 219 (CCPA 1976).

Under *In re Wands*, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988) there are multiple factors that need to be considered in making a determination as to whether experimentation is “undue.” These factors are:

- (A) The breadth of the claims;
- (B) The nature of the invention;

- (C) The state of the prior art;
- (D) The level of one of ordinary skill;
- (E) The level of predictability in the art;
- (F) The amount of direction provided by the inventor;
- (G) The existence of working examples; and
- (H) The quantity of experimentation needed to make or use the invention based on the content of the disclosure.

It is improper to conclude that a disclosure is not enabling based on an analysis of only one of the above factors while ignoring one or more of the others. The examiner's analysis must consider all the evidence related to each of these factors, and any conclusion of nonenablement must be based on the evidence as a whole. *In re Wands*, 858 F.2d at 737, 740, 8 USPQ2d at 1404, 1407.

In rejecting Claims 1 to 21, Examiner only considered factor (E), the Examiner's perceived level of unpredictability in the art. In the first instance, this one-dimensional analysis is improper under *Wands*. Second, Examiner is incorrect as to the degree of unpredictability in the art of propylene polymerization.

#### Breadth of the Claims and Nature of the Invention

The initial inquiry in determining enablement is the nature of the invention itself, i.e., the subject matter to which the claimed invention pertains. M.P.E.P. 2164.05.

Both amended Claim 5 and amended Claim 14 are method claims of definite scope. Claim 5 recites an improved method for producing a multilayer biaxially oriented film. The improvement comprises providing as a core layer a propylene homopolymer having a xylene insoluble fraction and a xylene soluble fraction. The xylene insoluble fraction having a meso run length of less than or equal to 130. The ratio,  $r$ , of the meso run length of the xylene insoluble fraction to the percent content of the xylene soluble fraction in the polypropylene homopolymer is 22 or less, as determined by the equation,

$N_m / \%XS = r$ , where  $N_m$  is the meso run length of the xylene insoluble fraction, and  $\%XS$  is the percent content of the xylene soluble fraction in the polypropylene homopolymer.

Claim 14 recites a method for consistently providing a propylene homopolymer displaying a broad processing window and a wide range of processing temperatures as core material in the manufacture of a biaxially oriented film. The method comprises polymerizing propylene in the presence of a polymerization catalyst such that the propylene homopolymer produced comprises about 91 to about 97 percent by weight of a xylene insoluble fraction having a meso run length of 130 or less, and about 3 to about 9 percent by weight of a xylene soluble fraction. The ratio,  $r$ , of the meso run length of the xylene insoluble fraction to the percent content of the xylene soluble fraction in the polypropylene homopolymer is 22 or less, as determined by the equation,  $N_m / \%XS = r$ , where  $N_m$  is the meso run length of the xylene insoluble fraction and  $\%XS$  is the percent content of the xylene soluble fraction in the propylene homopolymer.

The nature of the invention recited in each claim is a method. In the case of Claim 5 it is an improved method for producing a multilayer biaxially oriented film. In the case of Claim 14 it is a method for consistently providing propylene homopolymer displaying a broad processing window and a wide range of processing temperatures as core material in the manufacture of a biaxially oriented film. Both of these claims therefore pertain to providing improved and consistent processability in the production of biaxially oriented films. Applicant has submitted the declaration of Dr. Sehyun Kim, which supports this interpretation of the nature of the invention. Specifically, the declaration states that by using “known techniques to control the average meso-run length as measured in the xylene insoluble fraction of a propylene homopolymer, and the xylene

soluble content of the polymer within specified parameters, surprisingly good and reproducible processability in BOPP film production can be obtained.” That good and reproducible processability in BOPP film production could be obtained in this way was not previously known. Further, the declaration states that the claimed invention is not a method for controlling the average meso-run length of the xylene insoluble fraction, and xylene solubles content in a polypropylene. Rather, the invention is the discovery that by using these known techniques to control the average meso-run length as measured in the xylene insoluble fraction so that it is 130 or less, and the content of xylene solubles in the polymer within the disclosed and claimed ranges so that the ratio of the average meso-run length to xylene solubles is less than 22, surprisingly good and reproducible results in BOPP film manufacture are obtained.

The claimed scope for control of the targeted parameters is fully supported throughout the instant specification, with specific examples provided in the specification at Table 1, D through J.

*The State of the Prior Art, the Level of One of Ordinary Skill and Level of Predictability in the Art*

“The specification need not disclose what is well known to those skilled in the art and preferably omits that which is well-known to those skilled and already available to the public.” *In re Buchner*, 929 F.2d 660, 661, 18 USPQ2d 1331, 1332 (Fed. Cir. 1991).

The Applicant has submitted the declaration of Dr. Sehyun Kim, which details the state of the prior art and the predictability in the art. As demonstrated by this review, average meso-run length and xylene solubles content as properties of polypropylene are both well known to those of ordinary skill in the art. Further, the academic and patent literature both demonstrate that the process parameters that affect average meso-run

length and xylene solubles content are known by those of ordinary skill in the art, as is how to manipulate those process parameters.

Contrary to the Examiner's assertion, it is well known that catalyst, internal donor, co-catalyst and external donor all have a predictable effect on stereospecificity and solubles content, as do process temperature and hydrogen concentration.

"The amount of guidance or direction needed to enable the invention is inversely related to the amount of knowledge in the state of the art as well as the predictability in the art." *In re Fisher*, 427 F.2d 833, 839, 166 USPQ 18, 24 (CCPA 1970). "The more that is known in the prior art about the nature of the invention, how to make, and how to use the invention, and the more predictable the art is, the less information needs to be explicitly stated in the specification." M.P.E.P. 2164.03.

The declaration of Dr. Sehyun Kim demonstrates that there is a large amount of information in the academic and patent literature about how to control average meso-run length, as measured in the xylene insoluble fraction, and xylene soluble content. This same literature demonstrates that the effects of varying processing parameters on average meso-run length, as measured in the xylene insoluble fraction, and xylene soluble content are also known.

What the art does not teach, and what has been discovered, is that by using known techniques to control the average meso-run length of the xylene insoluble fraction and the quantity of xylene solubles in a polypropylene homopolymer within certain parameters, surprisingly good and reproducible results in BOPP film manufacture are obtained.

The Amount of Direction Provided by the Inventor

The Applicant has specifically disclosed and claimed the two parameters and their combination that is necessary to achieve the claimed results. Specifically, the Applicant has disclosed the necessary range for the average meso-run length as measured in the xylene insoluble fraction, and the required ratio of the meso-run length to xylene soluble fraction. In Table 2 and in paragraph [0020] and [0021] the Applicant states specifically that neither parameter alone guarantees good results on a tenter line. The Applicant has taught how to practice the invention.

Further, as shown above, the processing parameters that affect these two properties and how to control them are well known. Therefore, under *Fisher*, the degree of guidance required with respect to the process parameters used to achieve the claimed average meso-run length as measured in the xylene insoluble fraction, and the required ratio of the meso-run length to xylene soluble fraction is low.

The Existence of Working Examples

The Applicant has provided seven working examples in Table 1 of the specification, D through J, which demonstrate that when the parameters of the average meso-run length as measured in the xylene insolubles fraction, and the xylene solubles fraction, are both controlled with the ranges described, and so that the ratio of the average meso-run length to xylene solubles is less than 22, surprisingly good and reproducible results are obtained in BOPP film production.

This demonstrates that one practicing the claimed invention would achieve the claimed result of improved processing in biaxially oriented film production.

The Quantity of Experimentation Needed to Make or Use the Invention Based on the Content of the Disclosure

“The test [for undue experimentation] is not merely quantitative, since a considerable amount of experimentation is permissible, if it is merely routine.” *In re Wands*, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988)

Since the process parameters that affect average meso-run length and xylene solubles content are known, as shown by the open literature, any experimentation necessary to practice the claimed invention would amount to only optimizing those parameters. It would not be a matter of having to identify the necessary process parameters and their effects prior to optimizing them. Routine experimentation involving the optimization of known parameters is always necessary when implementing a new product or process in a commercial scale polymerization reactor train.

Conclusion

The first paragraph of 35 U.S.C. § 112, requires that the specification describe the invention so as to enable one of ordinary skill in the art to make and use the invention. Applicant respectfully submits that under the *Wands* factors, the specification, coupled with what is known in the art would enable one of ordinary skill in the art to practice the invention recited in Claims 5 to 9, 14 to 16 and 22.

Claims 5 to 9 recite an improved method for producing a multilayer biaxially oriented film. Claims 14 to 16 and 22 recite a method for consistently providing propylene homopolymer displaying a broad processing window and a wide range of processing temperatures as core material in the manufacture of a biaxially oriented film. The nature of the invention is the realization that one can obtain improved processing in biaxially oriented film production by controlling average meso-run length, as measured in

the xylene insoluble fraction, and xylene soluble content in polypropylene. Operative examples are provided, which show that when average meso-run length, as measured in the xylene insoluble fraction, and xylene soluble content are controlled in the claimed ranges, the claimed improved processing is consistently obtained. This was previously unknown in the art.

Applicant respectfully submits that the review of the academic and patent literature demonstrates that methods of controlling those two parameters are known. Therefore, Applicant respectfully submits that under *Buchner* it is not necessary to explicitly disclose those methods in the specification. Further, Applicant respectfully submits that since these methods are known, the experimentation necessary to optimize a polymerization reaction to obtain the claimed values for average meso-run length, as measured in the xylene insoluble fraction, and xylene soluble content would be routine.

Applicant therefore respectfully submits that Claims 5 to 9, 14 to 16 and 22 are enabled under 35 U.S.C. § 112, first paragraph. Reconsideration is respectfully requested.

### Conclusion

Applicant believes that the foregoing amendments and remarks have overcome or rendered moot all grounds for rejection or objection. There being no other rejections or objections, Applicant believes that the application is in a condition for allowance. Applicant therefore respectfully requests prompt action on the claims and allowance of the application. If the Examiner believes that personal communication will expedite prosecution of the application, the Examiner is invited to telephone Applicants' undersigned attorney directly.

**Petitions and Authorizations**

Applicant believes that no extension of time is required to make submission of this response timely. However, in the event that an extension of time is required, Applicant hereby submits a petition for such extension of time as may be necessary to make this response timely. The Commissioner is hereby authorized to charge the necessary fees to deposit account No. 50-0573. A duplicate of this authorization is enclosed.

Respectfully Submitted,

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